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(FILE 'HOME' ENTERED AT 15:11:09 ON 28 MAY 2004)

FILE 'REGISTRY' ENTERED AT 15:11:21 ON 28 MAY 2004

L1 1 S UREA/CN

SEL NAME L1

FILE 'CA' ENTERED AT 15:12:10 ON 28 MAY 2004

L2 20207 S (L1 OR E1-35 OR NH2CONH2) (7A) (DETECT? OR DETERMIN? OR ANALY? OR ASSES? OR ASSAY? OR ESTIMAT? OR EVALUAT? OR EXAMIN? OR MEASUR? OR MOONITOR? OR TEST? OR SENSE# OR SENSOR OR SENSING OR PROBE# OR PROBING OR QUANTIF? OR QUANTITAT?)

L3 369 S L2 AND (POTENTIOMET? OR VOLTAMET? OR VOLTAMMET?)

L4 5 S L3 AND WORKING ELECTRODE

L5 41 S L3 AND (PLATINUM OR GOLD OR RHODIUM OR IRIDIUM OR PT OR AU OR IR OR RH) (3A) ELECTRODE

L6 10 S L3 AND (PULSE# OR PULSING OR PCA OR MULTIVARIATE OR PRINCIPLE COMPONENT)

L7 52 S L4-6

=> d bib,ab 17 1-52

~~L7~~ ANSWER 10 OF 52 CA COPYRIGHT 2004 ACS on STN
AN 136:125391 CA
TI Urea adsorption on platinum single crystal stepped surfaces
AU Climent, V.; Rodes, A.; Albalat, R.; Claret, J.; Feliu, J. M.; Aldaz, A.
CS Departament de Quimica Fisica, Universitat d'Alacant, Alacant, E-03080, Spain
SO Langmuir (2001), 17(26), 8260-8269
AB Urea adsorption was studied at Pt(110) and stepped **platinum electrodes** with orientations vicinal to Pt(111) in the [1.hivin.10] and [01.hivin.1] zones. In situ IR spectra and cyclic voltammograms obtained in the **urea**-contg. solns. were **analyzed** as a function of the (110) or (100) step densities. At the same time, **voltammetric** data were combined with charge displacement expts. to det. the potential of zero total charge (pztc) in the presence of urea. The variation of the pztc with the step d. is similar to that previously obsd. for the same surfaces in sulfuric acid solns. thus confirming the anion-like behavior of urea mols. at **platinum electrodes**. Potential-dependent changes in the bonding of urea at the **Pt(110) electrode** were found to be similar to those previously reported for Pt(111), with N-bonded and O-bonding urea predominating at low and high coverages, resp. The same behavior is obsd. for stepped surfaces contg. (111) terraces and (110) steps. On the other hand, urea mols. bonded through the 2 nitrogen atoms are detected in the whole coverage range at surfaces with a high d. of (100) steps.

~~L7~~ ✓ ANSWER 16 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 130:273210 CA

TI Urea adsorption on **Pt(111) electrodes**

AU Climent, V.; Rodes, A.; Orts, J. M.; Aldaz, A.; Feliu, J. M.

CS Departament de Quimica Fisica, Universitat d'Alacant, Alacant, E-03080, Spain

SO Journal of Electroanalytical Chemistry (1999), 461(1,2), 65-75

AB The urea adlayers formed at the surface of Pt(111) **electrodes** immersed in urea-contg. perchloric acid solns. were characterized in situ by a combination of cyclic **voltammetry**, charge displacement and FTIRS expts. The data obtained concern the potential-dependent changes in coverage and bonding geometry for the adsorbed urea mols. In this respect, the IR spectra obtained at potentials <0.50 V suggest that the adsorbed urea species are bonded through only one of the nitrogen atoms. O-bonded urea mols. appear at higher potentials, being the major species at potentials around 0.70 V, for which satn. is attained. The abs. **urea** coverage was **estd.** from the **voltammetric** expts. and is ~0.45. This value was confirmed by a thermodynamical anal. of the charge densities involved in the formation of the urea adlayer for different potentials and urea concns. The charge d. and coverage values are consistent with a net exchange of one electron per adsorbed urea mol. All these data are compared with those previously reported for the Pt(100) **electrode**.

L7 ANSWER 18 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 130:72901 CA

TI Synthesis and optimization of permselective polymer (polyindoline) film

AU Ozden, Mustafa; Ekinici, Ergun; Karagozler, A. Ersin

CS Faculty of Arts & Sciences, Department of Chemistry, Inonu University, Malatya, 44069, Turk.

SO Journal of Solid State Electrochemistry (1998), 2(6), 427-431

AB A polyindoline permselective polymer film was readily synthesized by an electrochem. polymn. of indoline in an aq. soln. of KCl at a potential of 0.4 V vs. Ag/AgCl. The amperometric responses of the polyindoline film-coated **platinum electrodes** to electroactive (ascorbic acid, oxalic acid and hydrogen peroxide) and nonelectroactive (lactose, sucrose and **urea**) substances were **measured** at a potential of 0.7 V. Effects of various variables such as film thickness, concns. of monomer and electrolyte, and pH on the permselective behavior of the polymeric membrane were systematically studied and the optimal values were detd. Permselective polyindoline-coated electrodes prep'd. in this 1-step procedure permitted hydrogen peroxide oxidn. while it prevented interference due to oxidizable species such as ascorbic acid and oxalic acid. As a result, it is believed that this polymeric membrane, owing to its permselective character, can be used as the protective material in the construction of hydrogen peroxide-based biosensors.

L7 ANSWER 24 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 124:311464 CA

TI Thick-film multichannel biosensors for simultaneous amperometric and **potentiometric** measurements

AU Silber, A.; Bisenberger, M.; Braeuchle, C.; Hampp, N.

CS Institute of Physical Chemistry, University of Munich, Sophienstrasse 11, Munich, D-80333, Germany

SO Sensors and Actuators, B: Chemical (1996), B30(2), 127-32

AB A seven-channel multibiosensor for simultaneous amperometric and **potentiometric** operation is described. The transducer is fabricated by screen-printing techniques in thick-film technol. and contains 14 **gold electrodes**, which act as working and counter electrodes, and one silver electrode, which is chlorinated to give an integrated silver/silver chloride ref. electrode. The ion-selective membranes are based on a poly(vinyl chloride)-poly(vinyl acetate) copolymer. Entrapment of enzymes is achieved by membranes made from org.-solvent-free aq. polymer dispersions, which can be applied to the sensor electrodes by screen-printing or solder dispenser systems. The sensor is integrated into a flow-injection-anal. (FIA) system and is applied to the anal. of blood serum electrolyte (K⁺, Li⁺) and metabolite (glucose, urea, lactate) status.

L7 **ANSWER 26 OF 52** CA COPYRIGHT 2004 ACS on STN

AN 120:3732 CA

TI Amperometric ion sensors and their applications in food chemistry and clinical chemistry

AU Senda, Mitsugi; Yamamoto, Yukitaka

CS Dep. Biosci., Fukui Prefect. Univ., Fukui, 910-11, Japan

SO Bioelectroanal., 2, Symp., 2nd (1993), Meeting Date 1992, 139-60.

Editor(s): Pungor, Erno. Publisher: Akad, Kiado, Budapest, Hung.

AB Amperometric ion sensors based on amperometry or **voltammetry** with a polarizable oil/water interface are described and discussed for their applicability in anal. of foods and body fluids. The amperometric sensor gives a current response proportional to the concn. of the analyte. The **pulsed** amperometric technique is used to follow the current response of the sensors, which allows the sensors high reproducibility and long lifetime. In amperometry or **voltammetry**, simultaneous detn. of two or more analytes with a single sensor can be achieved. Also, correction for (residual) current due to interfering (residual) substance(s) is relatively easy. Amperometric sensors for the detn. of K and Na ions and of volatile amines (ammonia and trimethylamine) in foods are described. A biosensor for **urea** and its applicability to body fluid **anal.** are presented. A creatinine biosensor also is described.

L7 **ANSWER 30 OF 52** CA COPYRIGHT 2004 ACS on STN

AN 116:98652 CA

TI Non-enzymatic response towards urea using a poly(L-glutamate)-modified **platinum electrode**

AU Maeda, Mizuo; Fujita, Yuji; Nakano, Koji; Takagi, Makoto

CS Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SO Journal of the Chemical Society, Chemical Communications (1991), (24), 1724-5

AB An electrochem. response towards urea was obtained by using a poly(L-glutamate)-immobilized **Pt electrode** which does not comprise the enzyme-relying transducer.

L7 **ANSWER 31 OF 52** CA COPYRIGHT 2004 ACS on STN

AN 116:93799 CA

TI Adsorption of urea on platinum(poly), platinum(111) and platinum(100):
voltammetric and UHV study
AU Rhee, Choong Kyun
CS Dep. Chem., Univ. Illinois, Urbana, IL, 61801, USA
SO Journal of the Electrochemical Society (1992), 139(1), 13C-16C
AB The anion-like behavior of urea on Pt single crystals was confirmed,
and the interaction of the mol. shows dependency of surface crystallog.
orientations of the electrodes. Because the adsorption strength of
urea was expected to be weak, the possibility of a UHV expt. of the
urea/Pt single-crystal system was **tested** and was successful. The obsd.
c(2 x 4) LEED pattern of urea on Pt(100) can be a guideline for theor.
study to explain the remarkable modification of the voltammogram by the
mol. However, further research is needed to fully understand the
adsorption process of **urea**, including **quant. measurements** of adsorption
and further LEED studies that should provide conclusive information on
the structure of urea adlattice and the no. of electrons transferred
during adsorption.

(L7) ANSWER 32 OF 52 CA COPYRIGHT 2004 ACS on STN
AN 116:70450 CA
TI Platinized-titanium electrodes for urea oxidation. Part II.
Concentric spiral coil geometry
AU Patzer, John F., II; Wolfson, S. K., Jr.; Yao, S. J.
CS Dep. Chem. Eng., Univ. Pittsburgh, Pittsburgh, PA, 15261, USA
SO Journal of Molecular Catalysis (1991), 70(2), 231-42
AB Highly active urea electro-oxidn. catalysts were prep'd. by
electrodeposition of Pt onto Ti in a novel, concentric spiral coil
geometry. The concentric spiral coil geometry can be used directly in
construction of electrochem. reactors. The Pt deposition from
chloroplatinic acid required about 1.5 times the stoichiometric charge.
Projection of **urea** conversion activity from cyclic **voltammetry**
measurements to a clin.-scale, portable hemodialysis system indicates
that approx. 10 g of Pt will be required for the clin.-scale system.
The specific **urea** conversion activity, as **measured** by cyclic
voltammetry, is linearly related to the specific Pt surface area of the
deposition. The depositional growth morphol. is found to be self-
similar, with a fractal dimension that lies somewhere between uniform
deposition and hemispherical growth.

(L7) ANSWER 33 OF 52 CA COPYRIGHT 2004 ACS on STN
AN 116:70449 CA
TI Platinized-titanium electrodes for urea oxidation. Part I.
Demonstration of efficacy
AU Patzer, John F., II; Yao, S. J.; Wolfson, S. K., Jr.
CS Dep. Chem. Eng., Univ. Pittsburgh, Pittsburgh, PA, 15261, USA
SO Journal of Molecular Catalysis (1991), 70(2), 217-30
AB Electrodes that are highly electrocatalytically active for urea oxidn.
were made by platinum electrodeposition onto minimally pretreated
titanium surfaces. The Pt deposition from chloroplatinic acid required
approx. sixteen times the stoichiometric charge requirement. Selected
electrodes were **evaluated** for **urea** oxidn. activity by a cyclic

voltammetry method. A max. in Pt utilization for urea oxidn. was obsd. at a Pt loading of ~1g/100 g Ti. The platinized Ti surfaces were as much as 1900 times more active for urea oxidn. than smooth Pt surfaces on a per unit mass of Pt basis. Extrapolation of these results to clin.-scale dialyzate regeneration systems indicates that about 5 g Pt will be required for a clin.-scale deureation reactor.

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ANSWER 37 OF 52 CA COPYRIGHT 2004 ACS on STN

AN 110:20620 CA

TI An integrated multibiosensor for simultaneous amperometric and **potentiometric** measurement

AU Kimura, J.; Murakami, T.; Kuriyama, T.; Karube, I.

CS NEC Corp., Kawasaki, 213, Japan

SO Sensors and Actuators (1988), 15(4), 435-43

AB A multibiosensor, in which a glucose **sensor** based on amperometry and a **urea sensor** based on **potentiometry** are integrated, has been realized by a complementary use of ISFETs and micro-patterned planar **gold electrodes**. This multibiosensor is composed of two ISFETs and 3 micro-planar **Au electrodes** on a Si on sapphire (SOS) device. On the back surface Au layer, 1 of the electrodes works both as a counter electrode for the amperometric measurement and as a pseudo ref. electrode for the **potentiometric** measurement. Glucose oxidase (GOD)-immobilized membrane, urease-immobilized membrane, and bovine serum albumin (BSA) crosslinking membranes were deposited in appropriate positions by a lift-off method, 1 of the integrated circuit (IC) fabrication processes. Consequently, the multibiosensor is very suitable for miniaturization and mass prodn. A glucose concn. in the range 1-100 mg/dL and a urea concn. in the range 5-100 mg/dL were measured with a good relation. In the multibiosensor, amperometry and **potentiometry** exist on a complementary basis and each process provides what the other needs. The multibiosensor can thus be called a complementary multibiosensor (COMBIS).

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